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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/506,802

09/07/2004

Katsuya Watanabe

Q83437

6804

65565 7590 11/13/2008
SUGHRUE-265550
2100 PENNSYLVANIA AVE. NW
WASHINGTON, DC 20037-3213

EXAMINER

LIAO, DIANA J

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

11/13/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/506,802	Applicant(s) WATANABE ET AL.	
	Examiner DIANA J. LIAO	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-5 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Application

Claim 5 is presented for examination. Claims 1 and 2 have been cancelled by applicant amendment.

Please note that an additional translation of Kimura, et al. (JP 2001-353444) has been included to supplement the machine translation provided earlier.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura, et al. (JP 2001-353444) in view of Haensel, et al. (US 2,818,394).

Kimura '444 teaches a catalyst used for desulfurization. (para. 1) The catalyst composition contains a zirconium oxide, an alumina, a sulfate ingredient, palladium and

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optionally another metal such as platinum. (para. 9-10) The second metal, such as platinum, may be added at any stage before the calcination step, both simultaneously or separately from the palladium. (para. 25) The metals may be introduced during the early kneading step when the sulfate ingredient is added to the zirconia. (para. 36) The catalyst can be made by several different methods, including method (4), making the sulfated-zirconia, mixing in the alumina, drying and calcining and then impregnating palladium. Alternatively, according to method (5) palladium may be added to a sulfated zirconium hydroxide before mixing with alumina, molding, and calcining. There are no special limitations in the method for preparing the catalyst. (para. 24) These disclosed methods suggest a high degree of variability allowed in the process. Suitable raw alumina materials include alumina hydroxide, boehmite, and pseudo-boehmite. (para. 33) The catalyst may be molded to a desired shape. (para. 35) In addition to desulfurization, Kimura '444 discloses that a platinum metal with sulfated-zirconia had high isomerization performance. (para. 6) Kimura '444 discloses general calcination temperatures to be 300-700°C within a range of 0.5-10 hours. (para. 32)

The process order of first combining platinum and zirconia before adding alumina is mentioned as an option for creating the catalyst support in Kimura '444. As mentioned earlier, the metal may be added at the time of kneading with the sulfate source. Given that Kimura '444 teaches the addition of platinum into the sulfated zirconia before alumina addition as a viable possibility, the order of process steps as claimed is not found patentable. Generally a change in process step sequence or adding ingredients is not found patentable over the prior art and is a *prima facie* case of

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obviousness. The order in which to perform process steps or adding ingredients is not found to be obvious in absence of new or unexpected results. (See MPEP § 2144.04 IV C)

Alternatively, though Kimura '444 more directly teaches the incorporation of palladium and not platinum before molding and calcining, palladium and platinum are both considered precious or platinum group metals. In addition, Kimura '444 teaches that platinum may be added at any time, including simultaneously with the palladium, thus suggesting their equivalence and the possibility of switching the order of addition. Therefore, it would have been obvious to one of ordinary skill in the art to substitute the metals, with one of the options being to add platinum to the support first and palladium later.

In addition, regarding the steps of catalyst production, Kimura '444 does not clearly disclose a calcination step in between the metal loading steps.

Haensel '394 teaches the general preparation of platinum-containing catalysts. Haensel '394 is drawn towards a method of preparing a platinum-containing composite by commingling an oxide with a platinum-containing solution, drying and calcining the composite, and then further commingling the calcined composite with a platinum solution and calcining. (col 1, lines 28-34) This multiple calcination scheme is found to increase catalyst life and impart high catalyst activity. (col 2, lines 50-52) The heating in between impregnation steps is necessary in order to prevent migration of the platinum and to fix the crystal structure. (col 7, lines 28-31)

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Regarding the insertion of calcination steps after each metal loading step, given the separate metal loading steps as discussed above for Kimura '444, Haensel '394 teaches that calcination is important to fix the catalyst to the support. Therefore it would have been obvious to one of ordinary skill in the art to calcine the composition after incorporating metal into the molded shape and also after the subsequent impregnation. It would also have been obvious to load in separate steps in view of Haensel '394 since it teaches that impregnating and calcining in discrete steps creates a catalyst of higher activity.

Therefore, due to platinum and palladium being obvious alternatives and the known higher activity and stability imparted by a plurality of loading and calcination steps, claim 5 is not found patentable over the prior art.

Response to Arguments

4. Applicant's arguments with respect to claims 1, 2 and new claim 5 have been considered but are moot in view of the new ground(s) of rejection and the cancellation of claims 1 and 2.

Applicant argues that the steps outlined in claims 1 and 2, clarified into new claim 5, yield unexpected results over the process as taught by Kimura '444. However the results are not sufficient to show unexpected results. There are too many differences between the composition as described in the prior art (i.e. Pt amount, sulfate amount) to determine if the step of putting platinum into the support first, calcining, and then loading palladium and calcining yields a more effective catalyst. In other words, the process

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steps themselves are not sufficiently compared in order to show the criticality or unexpected results of the claimed catalyst. Furthermore, the unexpected results were found in an *intended use of the catalyst* being made, which does not bear much weight pertaining to the *method of making* the catalyst. Therefore, the showing of unexpected results is not found to be sufficient.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIANA J. LIAO whose telephone number is (571)270-

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3592. The examiner can normally be reached on Monday - Friday 8:00am to 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ngoc-Yen M. Nguyen/
Primary Examiner, Art Unit 1793

DJL